Dup ARIZ. UNIV. LIB. SEP 26

ugust, 1918 Extension Circular No. 76

The Canning of Fruits and Vegetables By 4-H Recipes

JANE S. MCKIMMON

Canning Club Girls at Work. A Demonstration in Proper Methods

N. C. State College of Agriculture and Engineering
N. C. State Department of Agriculture
N. C. Agricultural Experiment Station, and
U. S. Department of Agriculture, Cooperating

Agricultural Extension Service

B. W. KILGORE, *Director*

Raleigh and West Raleigh

CANNING AND PRESERVING WITH 4-H RECIPE

(Reprint and revision of Extension Circular 11)

JANE S. MCKIMMON, *State Agent in Home Demonstration Work*

THE 4-H BRAND

The 4-H Brand represents Head, Hand, Heart, and Health.

In the production of a product which shall rank with the best standa brands, the **Head** is developed by devising ways and means, and evolvi plans.

The **Hand** is taught to cunningly and systematically execute.

The **Heart** grows big enough to take in all other workers and bid t hand lend assistance wherever it is needed.

The **Health** is promoted by wholesome work in the fresh air and the hap commingling of friends and neighbors.

FIG. 1—The 4-H Brand.

CANNING

It is the part of wisdom when deciding to can in tin or glass to o supplies early and to be in readiness when the fruits or vegetables r

Cans.—In ordering tin cans, the best are none too good. Always s late that they shall be twice dipped, as leaks may occur with the che ones. Be sure, also, that the order includes solder-hemmed caps. T caps are sealed very easily onto the cans, whereas those without solde troublesome and tedious. The No. 3 can is most popular for toma peaches, etc., and holds a quart. No. 2 is the next size smaller, and is generally for peas, corn, soup mixture, etc. No. 1 is the size used for pi

es. No. 10 is supposed to hold a gallon. All of these cans may be ordered th the same size opening; and care should be taken in ordering to state the e of the capping steel—2 1-16 inches in diameter or larger, as the case ay be. Two and one-sixteenth inches is the standard opening.

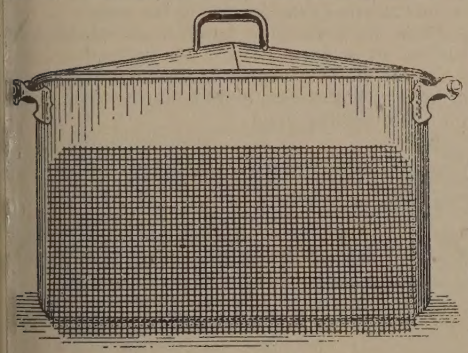

FIG. 2—Sterilizer, showing false bottom.

The Canner.— The hot-water canner has been used very generally by the North Carolina Canning Clubs, and many excellent types of this canner are on the market. It is stipulated that all canners used by the club girls shall have closely fitting tops, as steam plays an important part in the sterilization of cans. Out-of-door canning is encouraged, and the use of canners with good fire-boxes built in them is urged. It is usually best to buy a canner, as it nes equipped with capping steel, tipping copper, tongs (with which to lift s), and handy baskets or trays which enable the lifting out of or the ering into the hot water many cans at once.

The Home-made Canner.—Good home-made canners may be used, how-r, and are very satisfactorily devised from a large galvanized tub which itted with a tight top and used either on the cooking-stove or on an im-vised oven in the yard. Wire baskets may be devised of stout wire net-g, to be had at hardware stores. A good canner substitute, when only a cans are to be sterilized at once, is a 20-pound lard bucket or a wash ler. If glass jars are to be used in these ne-made canners, be sure to make a false tom of galvanized wire netting (one-half h mesh), which shall keep the jars from ning in contact with the metal bottom of vessel.

A high-pressure or steam-pressure canner is ecially desirable when meats and sea foods, s, corn, spinach, squash, pumpkin, etc., are ned. These products require the three-day cess in a hot-water canner, but may be ned at high pressure in one processing. A d steam-pressure canner may be subjected 30 pounds pressure. Most products do not uire over 15 pounds pressure.

FIG. 3—The Pressure Canner.

The Capping Steel.— Unless the capping el is kept in good condition there will be old trouble in sealing cans.

o remove rust from the steel, rub with rse sandpaper or use a file, being careful to hurt the edge.

he steel is now ready to be tinned or coated with solder. To do this it ecessary to have soldering flux, solder, and sal ammoniac.

eat steel quite hot, dip quickly in flux, and rub in sal ammoniac and er. Wipe with damp cloth. It should emerge bright and shining.

Soldering Flux.—Put one-half cup of commercial hydrochloric (muriati acid in glass or china vessel (never metal), add as much zinc as it will d solve (half a top of an old Mason jar, which is made of zinc, will do). T mixture will boil furiously. When this has subsided, remove zinc, add or half cup of water, and place mixture in glass jar ready for use.

Sal Ammoniac Mixture.—Place in a vessel a handful of sal ammoni melt or cut into this small pieces of solder.

Tipping Copper.—This is a small pointed copper implement to be used sealing or tipping the small hole in top of can, and should be kept brigh tinned in the same manner as the capping steel.

STEPS TO BE TAKEN WHEN CANNING

Definitions of Terms Used

1. **Sterilizing.**—Sterilize all cans which are to be used by first washing remove any trash or dirt, and then placing them in a canner where water boiling. Let them remain ten m utes. Remove and turn open down on table that no dust or sect may enter before they are us

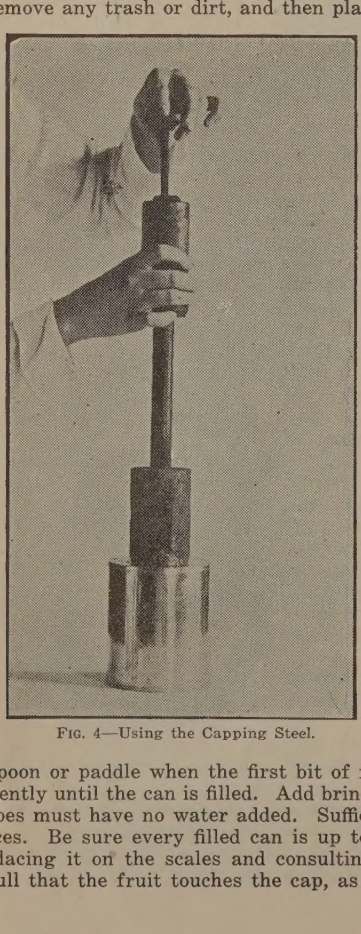

FIG. 4—Using the Capping Steel.

2. **Sorting and Grading Fruit**—Select only fresh, sound, thoroug ripe fruit, and grade as to size color. Thoroughly clean and p

3. **Blanching.**—Where the rec calls for blanching, be sure it never omitted. Blanching is sim plunging fruit or vegetables boiling water for a few minutes then into cold water before pack into cans. It is necessary that be done with string beans, peas, l beans, etc., and with most fr and berries. The flavor of the ve table is made more delicate and vegetable itself more pliable. P ing is made easier and the li in the can is made clearer, also the process. To blanch, place v tables or fruit in the wire baske canner or in a thin muslin sack plunge into boiling water. The of blanching is given in the t table. Plunge into cold water mediately afterward.

4. **Packing.**—After fruit or v tables are blanched, pack the sterilized cans until the can is f to about one-quarter inch of top. Begin to pack firmly spoon or paddle when the first bit of fruit is put into a can, pressing gently until the can is filled. Add brine or sirup as packing proceeds. T toes must have no water added. Sufficient juice will be present to fill ices. Be sure every filled can is up to standard weight. This is show placing it on the scales and consulting the table. Do not pack the ca full that the fruit touches the cap, as then it can never be sealed prop

ne hot steel will force steam from the fruit and pin holes will be blown in e solder. If the can will not seal, remove a portion of the fruit and try gain.

5. **Paddling.**—In packing canned or preserved products in glass it is neces- ry to use a thin flexible wooden or reed blade. This is run into the jar to lp place fruit and also to remove air bubbles. The paddle is also quite eful in packing tin cans.

Fig. 5—Standard Packs in Tin.

6. **Fluxing.**—Apply soldering flux with a small brush to the edge of the n openings, thus roughing the tin and permitting the solder to adhere re easily.

7. **Capping.**—Seal the cap on the can with a capping steel after it has en packed. Always wipe around the edge of the opening with soldering x before using the capping steel. Mark on the can in pencil the name product and owner. It will not boil off. The side seam is a good place. ne table on which sealing is done should be level and steady. To insure good seal the can must not be over full and capping steel must be clean, t, and well tinned.

8. **Exhausting.**—After the can is packed and capped it is placed in the ner of boiling water, where it remains the number of minutes, usually ree, indicated on the time-table. This is done to force the air from the n through the little hole left open in the top, and is called exhausting. ns that are not exhausted frequently bulge after processing and are ked upon with suspicion. Cans exhausted too long frequently cave in at e sides. The time-table should be used carefully and followed strictly in is part of the process.

9. **Tipping.**—Seal with a drop of solder the small hole in the top of can. is is done immediately after the can has been exhausted and makes it dy for processing. Always put soldering flux around the opening before empting to tip.

10. **Processing.**—After the can has been capped, exhausted, and tipped it ready for the processing. This is simply sterilizing by boiling continu- sly for a given length of time. First plunge the cans under water to be re there are no leaks. (A bucket of warm water may be used for this rpose.) These will be revealed by streams of bubbles rising to the sur-

face. If there be any, the can must be taken out and resealed. It is eith packed too full or the capping steel is cold or needs tinning. Place ca for processing in trays and lower them into the boiling water of the canne The temperature of the water will then be reduced. Wait until boiling b gins again before time is counted. Keep the water boiling every minute the time during processing and remove cans promptly when time is u Consult time-table and always have a clock or watch at hand. Do not gue

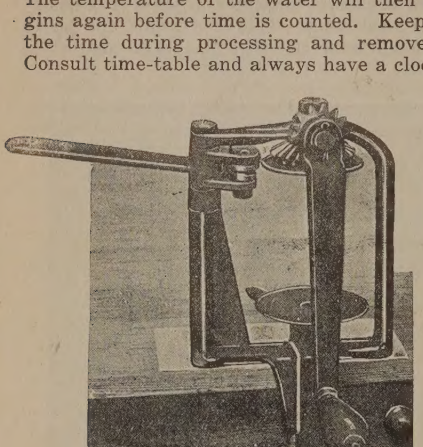

FIG. 6—A Hand-Sealer to be Used with the Sanitary Can.

11. **Cooling.**—Cans should cooled as quickly as possib after processing. Place them tubs of cold water, and wh they are taken out separa them in order that the air m keep them cool. Never sta cans while warm and never lea them in the sunshine. The flav of the fruit is injured and t fiber or flesh breaks down if te can is left too long in a heat state. Always store canned pr ucts in a cool place. Never all the can to rust by keeping it a damp cellar. Its appearan will injure the chance of mark ing, and rust may eat holes the tin.

12. **Labeling.**—Do not labe can until ready to sell, when le fresh label will be a great asset. After packing a can write plainly w pencil on the side the name of the product. This will not boil off and trouble will be experienced in pasting on them the proper labels. Place label in such a way that the smooth end of the can will be the top, turn the sealed end down. A better appearance is thus made. Use a good pa such as given in the recipe below, and put paste on only one end of the la Pull the label tightly around can, making it look thoroughly neat and t The 4-H label may be used by club members only, and then only when p ucts are of the standard regulation. The label must contain the name a address of member and net weight in ounces of contents of can.

Paste.—To 1 cup of flour add 1 cup of cold water and mix thoroug Add 2½ to 3 cups of boiling water, stirring to prevent lumps. Place stove and bring slowly to boiling point and boil 5 minutes. Stir to pre burning. When cooked, add 1 teaspoon of powdered alum and ½ teas of oil of cloves. Pour into small glasses with covers. This will keep, makes excellent paste to use in labeling cans or jars.

SOME THINGS TO BE OBSERVED WHEN CANNING

1. Be sure the canner is partly filled with water before fire is built.

2. Keep the water at a jumping boil and do not allow fire to die down an instant while cans are in the canner.

3. Keep cover on canner every moment of the processing time. St plays a large part in cooking the contents of a can.

4. If possible, use two canners at a club canning party, one for blanc fruit and the other for canning. A large pot set over a fire will serv blanching.

5. The quality or grade of the pack depends on the number of whole or uniform pieces of fruit in the can, the color of the fruit, the weight the flavor.

6. The flavor is often injured by letting peeled fruit stand too long before oking. Prepare at any one time only as many cans as can be processed mediately.

7. Let "Straight from vine to can" be the motto. Never can stale fruit.

8. Mark every can as it is filled, with the name and its contents. A ncil may be used as the writing will not boil off. This prevents confusion nen labeling.

Use No Artificial Preservatives.—Artificial preservatives in the form of cids," "Preserving Powders," and "Formulas" of various kinds are used some localities in the preservation of foods. They are recommended by vertisements and agents as being perfectly harmless and are guaranteed keep fruits and vegetables indefinitely. The object in using preservatives any kind is to kill bacteria, thereby preventing fermentation and decay. cteria are minute forms of life of very delicate structure, and if these fferent preservatives act on the structure of bacteria in such a way as to ll them, what might be the effect of these same preservatives when brought contact with the delicate structure inside the human body? Do not use tificial preservatives of any kind. The cheapest, surest, and only abso-tely safe way is to sterilize by means of heat applied in the form of cook-g. The small amount of sugar and salt used in canning fruits and vegeta-es does not act as a preservative. It is added for flavor.

IST OF ARTICLES REQUIRED FOR A CANNING DEMONSTRATION

anning outfit: capping steel, tipping copper, file, sandpaper.
pe for canner.
ry wood and kindling.
atches.
enty of water.
elter in case of rain.
in cans with solder-hemmed caps.
ire solder.
l ammoniac (commercial).
uriatic acid (commercial).
nall pieces of zinc (old Mason jar tops will do).
ery small camel's hair brush or rag mop.
lean cloths.
ish towels.
ad pencil.
atch or clock.
ousehold scales.
Old tin can.
Old cup and saucer.
Three paring knives.
Four granite-ware pans.
Three tubs.
Three tables well scoured or covered with oil cloth.
Bucket and dipper.
Salt and sugar.
Three teaspoons.
Three tablespoons.
Glass jars with tops and rubbers.
Something to can.
Bag for blanching.
Wash basin.
Soap.
Hand towels.
Labels.
Paste.

INSTRUCTIONS TO AGENTS FOR PUBLIC CANNING DEMONSTRATIONS

There will be many calls for public demonstrations in canning. These e to be encouraged, as it is desirable that the public be taught to can; it care should be taken that both club members and county agents are perienced before attempting these demonstrations.

Have everything ready before the audience arrives; the canner filled with ater first, and next a good fire to keep the water boiling. Detail one girl look after this. Two canners are best, if possible, or a large pot and canner, that there may be one for blanching fruit and the other for rocessing.

Let every girl have a white apron and cap, and do not have too ma working at one time at a public demonstration. Six girls are enough; o to attend to the fire, cooking, and timing of products; two to scald a peel; two to pack and weigh; and one to cap, tip, and label. Let the gi stand on one side of the table that the audience may observe what is bei done.

Be sure to impress the proper weight of cans upon the club girls. I struct them as to what is required before products can be put upon t market. Continually preach only **red, ripe tomatoes** and **firm, thorough ripe fruits and berries** for canning. The idea is prevalent that unripe fr is good enough for canning if it is well cooked. This, of course, is poo flavored and will lower the grade of the finished product.

Let no girl use the club label whose products are not up to standard.

The following standards are sent out by the United States Department Agriculture:

STANDARDS FOR 4-H BRAND CANNED VEGETABLES

Tomatoes.—Cans to contain not less than 2 pounds 1 ounce tomatoes No. 3 and not less than 1 pound 4 ounces tomatoes in No. 2. To be fil with sound ripe fruit, carefully peeled and cored; tomatoes to be whole in large pieces, firm, uniformly red, and of good flavor.

String Beans.—Net weight in No. 3 can before liquor is added at leas pound 8 ounces, brine 8 to 10 ounces. Net weight No. 2, 13 ounces be and about 8 ounces liquor. Beans to be tender, green, uniform in size, w strung, and of good flavor. The net weight which appears on label sho be for No. 3, 2 pounds, for No. 2, 1 pound 5 ounces.

Peas.—No. 2 cans to have at least 13½ ounces net weight of peas a about 8½ ounces liquor; peas to be fairly uniform in size, tender, whole, a of good flavor; liquor clear. Net weight appearing on label should be No. 2 cans 1 pound 8 ounces.

Baby Beets.—To be packed in No. 2 lacquered tins, about 30 baby beets each can, maximum size 1½ inches in diameter and average size 1 inch diameter. No. 2 can to have at least 16 ounces whole beets and 4 oun liquid. Net weight which appears on label should be for No. 2 can 1 po 4 ounces.

Okra.—Net weight of contents in No. 3 can should appear on label pounds. Only young, tender okra should be packed, and it is best to sim remove the cap without cutting into the seed pod and pack it whole. B is added as explained in the table.

Peppers.—No. 2 cans to contain between 8 and 10 whole peppers. F No. 1 cans to contain 4 or 5 whole peppers, and net weight of conte appearing on the label should be for No. 2 can not less than 1 pound flat No. 1 can not less than 8 ounces.

Soup Mixture.—No. 3 cans contain 34 ounces. Net contents.

STANDARDS FOR 4-H BRAND CANNED FRUITS

Figs.—Net weight contents No. 2 enamel-lined can of figs should app on label not less than 1 pound 6 ounces. Figs should remain whole, ar No. 2 can contain about 30 to 35 whole figs.

Peaches.—No. 3 can to have at least 1 pound 5 ounces solids and 11 ou liquid; to contain between 10 and 12 halves of peaches, and have net we of contents appearing on label not less than 2 pounds.

Pears.—Net weight in No. 3 can should be not less than 2 pounds, ha 11 ounces liquid, 1 pound 5 ounces solids, and between 12 and 14 halves

Berries.—No. 3 can, blackberries or raspberries, net weight 2 pounds; No. ans, net weight 1 pound 6 ounces, whole berries weighing about one-half total in each case. Berries to be large, whole, of good color and flavor. Almost all No. 3 cans, no matter what they contain, weigh 38 ounces gross.

SCORE FOR JUDGING THE QUALITY OF CANNED FRUITS AND VEGETABLES

	Score of 100
I. Appearance	25
(a) Color.	
(b) Clearness.	
II. Texture	10
III. Flavor	20
IV. Uniformity	15
(a) Ripeness.	
(b) Appropriate size.	
V. Pack (arrangement and weight)	15
VI. Container	15
(a) Appropriate package.	
(b) Label.	
(c) Neatness.	

Time-Table for Products in Tin

(Hot-Water Canner)

(Use this table only after recipes have been read)

	Blanch	Liquor	No. Can	Exhaust Minutes	Process or Boil
omatoes	1 min.	No water	3	3	22 min.
omatoes	1 min.	No water	10	5	1 hr.
ring beans	3 min.	Brine*	3	3	1 hr.
ring beans (very young and tender	3 min.	Brine*	10	3	2 hrs.
weet potatoes	Cook ¾ done	2 tablespoon water	3	3	3 hrs.
aby beets	Cook ¾ done	Hot water	3	3	1½ hr.
up mixture	Boil down thick		2	3	1 hr.
pples	1 min.	No. 1 sirup	3	3	8 min.
erries	1 min.	No. 2 sirup	3	3	8 min.
erries	1 min.	No. 2 sirup	10	3	25 min.
igs (peeled)		No. 3 sirup	2	3	25 min.
eaches		No. 2 sirup	3	3	20-30 min.
ears	15 min.	No. 2 sirup	3	3	20 min.
ears	15 min.	No. 2 sirup	10	3	35-50 min.

*Brine is made of 2½ ounces (one-third cup) of salt to 1 gallon of water.

To make sirups recommended, boil sugar and water together in proporons given below:

Sirup No. 1, use 14 ounces to 1 gallon water.
Sirup No. 2, use 1 pound 14 ounces to 1 gallon water.
Sirup No. 3, use 3 pounds 9 ounces to 1 gallon water.
Sirup No. 4, use 5 pounds 8 ounces to 1 gallon water.
Sirup No. 5, use 6 pounds 13 ounces to 1 gallon water.
One pint sugar is one pound.

Time-Table for Products in Tin

(Hot-Water Canner)

The following vegetables should be processed the same length of time each of three successive days:

	Blanch	Liquor	No. Can	Exhaust Minutes	Process Boil
Corn		Water, salt, and sugar..	2	10	1 hr. 15 m
Garden peas	1-4 min.	Water, salt, and sugar..	2	3	1 hr. 15 m
Field peas	10 min.	Water, salt, and sugar..	2	3	1 hr. 15 m
Asparagus	3-4 min.	Brine* (heavy)	2	3	1 hr.
String beans† (well grown)	3-5 min.	Brine*	3	3	1 hr. 15 m
Lima beans	2-4-min.	Brine*	2	3	1 hr. 10 m
Okra	3 min.	Brine*	3	3	1 hr. 10 m
Okra	3 min.	Brine*	2	3	50 min.
Squash	3-5 min.	Brine*	3	3	1½ hr.
Squash	3-5 min.	Brine*	2	3	1 hr. 15 m
Pumpkin	3-5 min.	Brine*	3	3	1½ hr.
Pumpkin	3-5 min.	Brine*	2	3	1 hr. 15 m
Spinach	4 min.	Brine	3	3	1 hr. 15 m
Spinach	4 min.	Brine	2	3	1 hr.

*Brine is made of 2½ ounces (one-third cup) of salt to 1 gallon of water.
†See recipe.

Number of cans per bushel yielded by the following vegetables:

1 bushel of tomatoes yields 24 No. 2 cans.
1 bushel of tomatoes yields 18 No. 3 cans.
1 bushel of beans yields 20 No. 2 cans.
1 bushel of beans yields 14 No. 3 cans.
1 bushel of peas in hull yields 25 No. 2 cans.
100 ears of corn yields 30 No. 2 cans.

Time-Table for Products in Glass

(Hot-Water Canner)

	Blanch	Liquor	Size Jar	Process Boil
Tomatoes	1 min.	No water	Quart	30 min.
Tomatoes	1 min.	No water	Pint	25 min.
String beans (very young and tender	3-5 min.	Brine*	Quart	1 hr. 15 m
Sweet potatoes	Cook ¾ done	2 tablespoon water	Quart	3 hrs.
Sauerkraut		Brine*	Quart	40 min.
Baby beets	Cook ¾ done	Hot water	Quart	1 hr. 40 m
Baby beets	Cook ¾ done	Hot water	Pint	1 hr. 20 m
Soup mixture	Boil down thick		Quart	1½ hrs.
Apples	1 min.	No. 1 sirup	Quart	15 min.
Berries	1 min.	No. 1 sirup	Quart	13 min.
Figs		No. 3 sirup	Quart	30 min.
Peaches	1-2 min.	No. 2 sirup	Quart	25 min.
Pears	1 min.	No. 3 sirup	Quart	25-35 mi
Cherries		No. 3 sirup	Quart	30 min.

*Brine is made of 2½ ounces (one-third cup) of salt to 1 gallon of water.

To make sirups recommended, boil sugar and water together in pro tions given below:

Sirup No. 1, use 14 ounces to 1 gallon water.
Sirup No. 2, use 1 pound 14 ounces to 1 gallon water.
Sirup No. 3, use 3 pounds 9 ounces to 1 gallon water.
One pint sugar is one pound.

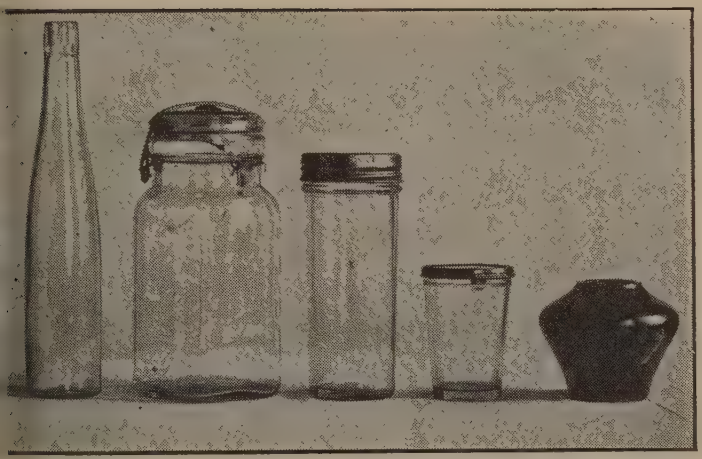

FIG. 7—Standard Glass Containers: 10-ounce Ketchup Bottle, Quart Queen Jar, 12-ounce Jar No. 5042, 6-ounce Jelly Glass, 10-ounce 4-H Jam Pot.

Time-Table for Products in Glass

(Hot-Water Canner)

The following vegetables should be processed the same length of time on h of three successive days:

	Blanch	Liquor	Size Jar	Process or Boil
n		Water, salt, and sugar	Pint	1½ hr.
den peas (young and ender)	1-4 min.	Water, salt, and sugar	Pint	1½ hr.
paragus	3-4 min.	Brine* (heavy)	Quart	1 hr. 20 min.
paragus	3-4 min.	Brine*	Pint	1 hr.
na beans	2-4 min.	Brine*	Pint	1 hr. 25 min.
ra	3 min.	Brine*	Quart	1½ hr.
lash	3-5 min.	Brine*	Quart	1½ hr.
mpkin	3-5 min.	Brine*	Quart	1¾ hr.
mpkin	3-5 min.	Cook done	Pint	1½ hr.
nach	4 min.	Brine*	Quart	1½ hr.

*Brine is made of 2½ ounces (one-third cup) of salt to 1 gallon of water.

Time-Table for Canning Vegetables (Steam Pressure)

Vegetable	Process, Minutes	Temperature, Degrees Fahrenheit	Pressure, Pounds	Vegetable	Process, Minutes	Temperature, Degrees Fahrenheit	Pressure, Pounds
aragus	30	240	10	Peas	45	240	10
ng beans, No. 2	45	240	10	Soup, concentrated vegetable	30	228	10
ng beans, No. 3	55	240	10	Spinach	30	228	15
ts	30	228	5	Sweet potatoes	70	250	15
n	80	250	15				
a	30	240	10				

Corn, lima beans, and peas should never be packed in larger contain
than No. 2. Corn is cut from cob after blanching.

The brine used is made of 2½ ounces salt to 1 gallon of water, except f
asparagus, which contains 4 ounces to 1 gallon.

Beets and rhubarb when packed in tin must be put in enamel-lined ca

Process pints as for No. 2 cans; quarts as for No. 3 cans, adding 10 m
utes to each period.

String beans when more mature should be processed at 15 pounds pressu
for 30 minutes for No. 2, and 45 minutes for No. 3.

CANNING IN GLASS

Glass jars are more economical for home canning than are tin cans, as th
can be used over and over again and the cost be spread over several yea

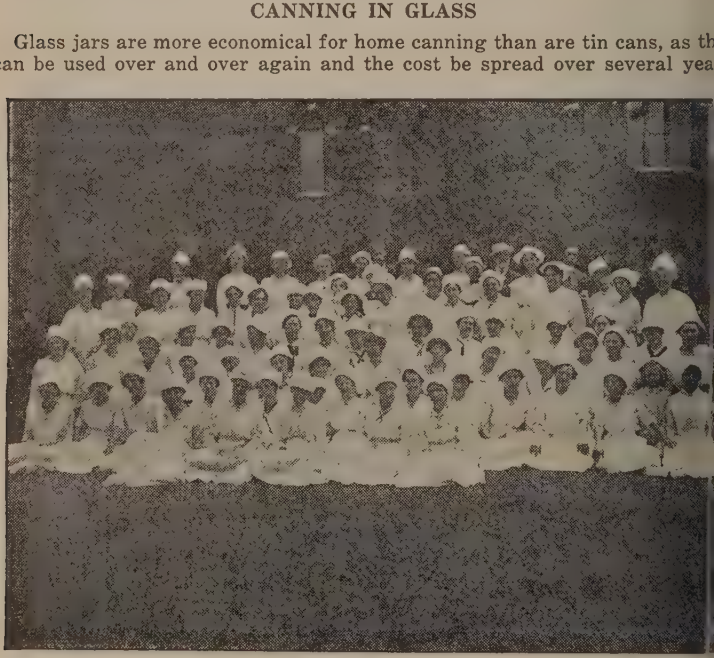

FIG. 8—North Carolina County Agents Attending Canning School and Conference.

The Kind of Jar.—Select, if possible, a good spring-top jar of clear w
glass. Fruit or vegetables show to great advantage through crystal c
glass.

The square Queen jar is very good, and is used as an exhibit jar by
Canning Club girls.

If clear glass cannot be had, the green glass may be used, but the app
ance of the canned product is much injured.

Sterilization, however, can be effected as well in one as the other, and
green jars serve excellently well for home use.

A good spring top is preferable, though the Mason top will serve for
year. After that time it is advisable to fit old Mason jars with new t

Rubbers.—The various types of jars are fitted with rubber rings on w
the tops rest when in place. Rings are used to aid in sealing the jars
in keeping them air-tight. After the contents of a jar have been steri

is very necessary that the jar be kept air-tight in order that whatever enclosed may remain sterile and free from the action of bacteria. Do ıt use rubbers the second time. The first season's heating usually destroys e life or elasticity of the rubber. For this reason it is important that ıod new rubbers be used, as those used one season cannot be depended ıon to make air-tight seals the second time. In buying rubbers, as in buy- g jars, get a good grade. Test the rubber for elasticity by stretching and ·lding. If it shows signs of cracking it is a poor product.

To Sterilize Jars.—To sterilize glass jars, place them in the canner in

FIG. 9—A Good General Exhibit. Packed by North Carolina Club Girls.

epid water. Do not fill the canner with more than three inches of water. 'lace cover on the canner. Bring the water to a boil and steam jars at east eight minutes.

No glass jars should be placed in a canner that has not an extra bottom r basket to keep them from touching the true bottom of the canner. If his happens jars will break. A piece of half-inch mesh galvanized wire ·etting will answer the purpose.

Rubbers should be sterilized by placing in a bowl of boiling water and llowing them to remain for three minutes.

Packing or Filling the Jars.—Remove the jars from the sterilizer, pre- ıare the fruit or vegetables, and pack them in the jars in symmetrical ayers, using a thin reed paddle or a spoon to push into place and to remove ır bubbles. Pack right into the neck of the jars, filling with water, brine, ır sirup, as the packing proceeds. Wipe clean the rim of the jar and place he rubber thereon. Push spring down lightly and place jar in the canner ıolding tepid water. Never place a cold or even cool jar in boiling water ır you will have breakage.

Processing.—When the water begins to boil violently, count time. Con- ult the time-table for glass, noting the exact number of minutes, and never ut this time short. Have a clock handy, and do not guess at time.

Leave the jars lightly sealed during the whole processing, and when the time is up, remove one at a time from the canner, seal tightly, and set aside

It can be seen that exhaustion and processing take place at the same time with glass. This method prevents the blow-out of rubbers and makes the jars easy to handle. In processing a glass jar for three successive days allow the jar to remain lightly sealed for the first day's processing, sealing tightly as you remove from the canner. Set aside until the next day. On the second day raise the clamp of the jar, place the jar in tepid water in the canner, process or boil for the same length of time as on the first day

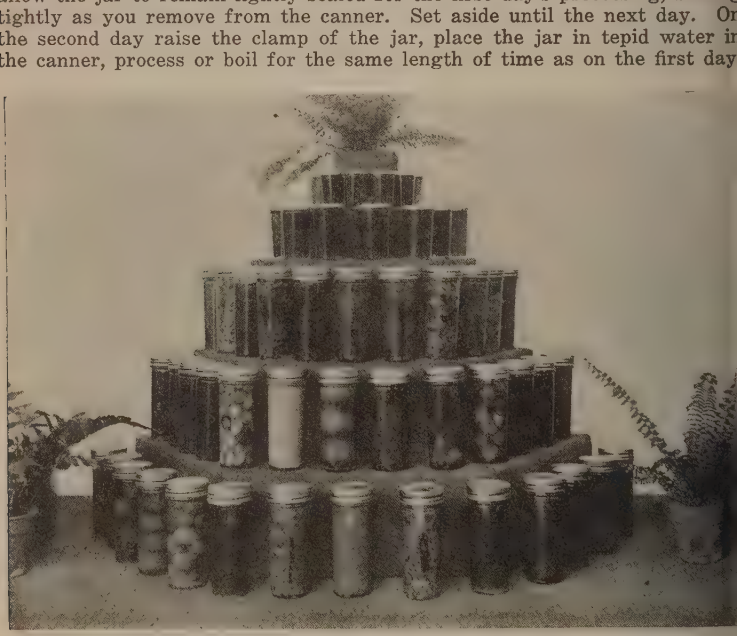

FIG. 10—A Fine Commercial Exhibit. Packed by North Carolina Club Girls.

Remove from the canner and seal tightly. Set aside until the third day when the same process should be repeated.

Shrinkage of Water in a Jar.—If the water shrinks in a jar, as it will frequently do with string beans and peas, have a kettle of boiling water ready and, just ten minutes before taking the jar from the canner, open the top of the jar and pour in boiling water until the jar is filled. Spring down top lightly, allow to remain in canner ten minutes, seal tightly, and remove

Processing Time for Glass Longer Than for Tin.—It is necessary to process products packed in glass jars longer than those packed in tin. Glass is not as good a conductor of heat as tin, and we therefore add, roughly speaking, five minutes to the time given for tin when canning fruits, berries, and tomatoes in glass, and fifteen minutes for all vegetables.

Compare the time-tables.

Cooling.—Be careful not to set hot glass jars in a breeze or on a cold table top. Set aside out of a draught. Do not permit jars to touch each other. It is well to cover the table with a cloth.

Labeling.—Have every jar brightly polished and place label midway between the seams and one-quarter inch from the lower edge. For exhibition purposes all labels are pasted underneath the glass jar.

CANNING FRUITS AND BERRIES IN GLASS AND TIN
4-H Recipes

Dewberries, Blackberries, Raspberries, and Huckleberries.—To can dewrries, blackberries, raspberries, and huckleberries, the following method ll prove satisfactory. Gather berries when ripe but firm. Place in a ıslin sack and plunge into boiling water one minute (blanch). This will ghtly soften the berries and enable you to put almost twice as many in can or jar. It will also prevent the condition where berries rise to the ɔ of the jar, leaving at least one-third of the space filled with juice.

FIG. 11—An Exhibit Packed by First-year Club Girls of North Carolina. Peaches, String Beans, and Soup Mixture.

Pack the sterilized can to within ¼ inch of the top with berries. Fill ıss jars quite full. Fill the spaces and cover the berries with a sirup .de of 1 gallon of water and 1 pint of sugar.

The flavor of all canned berries is finer when sirup or sugar is added.

Exhaust No. 3 tin cans 3 minutes.

Process No. 3 tin cans 8 minutes.

Process quart glass jars 13 minutes, permitting jars to remain lightly ıled while processing. As you lift jars one at the time from the canner, ıl tightly immediately.

Read carefully the chapter on "Canning in Glass."

Strawberries do not make a very attractive product. They are flabby and ɔrly colored. If they are canned, the recipe for blackberries may be folved.

Huckleberries.—Huckleberries should be canned just as are blackberries. re should be taken that they are well stemmed and perfectly clean before .nching.

NOTE.—Fruit may be successfully canned without the use of sugar; and when there is a rcity, it is sometimes necessary. Sugar is not used to preserve the fruit, but to bring out flavor and improve the taste. Even a small amount of sugar will greatly improve flavor. No. 1 sirup may be used where heavier sirups are quoted.

Huckleberries should never be canned in unlacquered tin, as frequently you will find the juice oozing through the seams of the plain tin can. Glass jars are best.

Peaches.—Clingstones—Eaton's Gold, ripe in September; Heath, ripe in September and October; Albright, ripe in October.

Freestone—Hiley, Belle, Reeves, Elberta, Matthews, and Chair's Choice—all ripe in August.

Clingstone peaches are best for canning and should be selected when the are fully ripe and of uniform size and color. Never pack in the same ja fruit of varying colors.

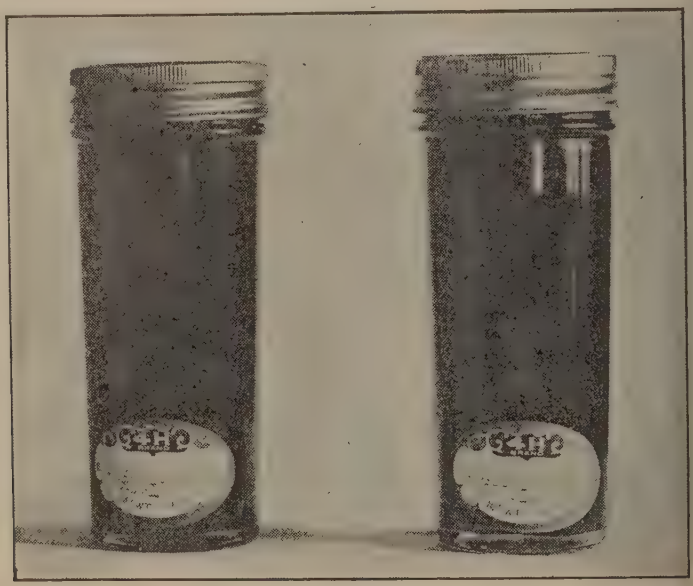

FIG. 12—Properly Labeled Jars.

Peeling Clingstone Peaches.—Firm peaches may be peeled by plac them in a muslin bag and plunging them into a boiling solution made fr 4 tablespoonfuls of concentrated lye to 1 gallon of water. Allow the fr to remain from 20 to 30 seconds and plunge immediately into plain boil water for the same length of time. The last plunge is into a large ve of cold water where the peaches are emptied from the bag and finally ta out to be peeled. The skin is then easily removed. If peaches remain long in the lye discoloration results. When semi-Cling peaches, such as Alberta, or a soft peach is canned, they may be peeled by plunging plain boiling water and then into cold water, or it is not difficult to pe them by hand.

After peeling the peaches, cut them into halves and remove the Have ready a boiling sirup made of 1 pound and 14 ounces of sugar 1 gallon of water (Sirup No. 2), or if sugar is very scarce, use 14 ou of sugar to 1 gallon of water. Add a few cracked peach pits to the boi sirup to improve the flavor and remove when sirup is cold. Remove boi sirup from fire, drop into it the halves of peaches, and allow to stand

old. Place in jars in overlapping layers with the pit side down and the em end towards the center of the jar. (See cut.) Always add sirup bit y bit as you pack, paddling to remove air bubbles.

Process a quart jar 25 minutes.

Exhaust No. 3 can 3 minutes and process 20 minutes.

Read carefully the chapter on "Canning in Glass."

Canned Apples.—Late fall and winter apples, which are slightly acid, are est for canning. Apples shrink more in canning than most fruits, there-ore they should be blanched or 1 minute before process-ng. Plunge into cold water fterward, pack tightly in No. cans, cover with sirup (14 unces of sugar to 1 gallon of vater) (Sirup No. 1).

Exhaust No. 3 tin cans 3 ninutes. Process 8 minutes.

When canning apples in lass, process quart jars 15 ninutes.

It is advisable to make mel-ow summer apples into apple auce. Pour hot into quart ars and process 15 minutes.

Read carefully the chapter n "Canning in Glass."

Canned Pears.—The Bar-ett pear is best for canning. Select ripe, sound, medium-ized fruit (cut in halves or f large in quarters). Remove ll the hard portions around he seed and submerge in cold vater to prevent discolor-tion.

Plunge the halves or quar-ers into boiling water and llow them to cook until they an be pierced with a straw, emove and pack closely in a No. 3 can or quart jar. Cover vith a boiling sirup made of

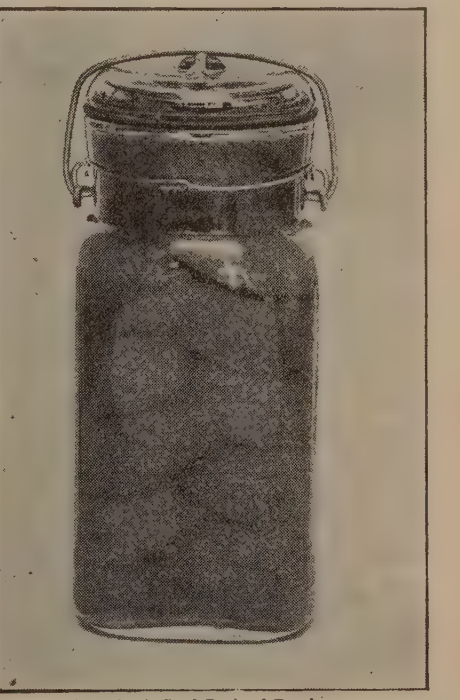

Fig. 13—A Good Pack of Peaches.

pounds and 9 ounces of sugar and 1 gallon of water (Sirup No. 3).

Exhaust No. 3 can 3 minutes and process 20 to 30 minutes.

Process quart jar 25 to 35 minutes.

If pears are to be packed for exhibit purposes, small pears should be cut in alves and layered as are peaches. Larger pears may have a thick slice cut rom each of the four sides. Hollow these slightly and pack in layers. The ruit remaining around the core can be ground and used in gingered pears.

Many complaints have come in regarding the hardness and lack of flavor n some canned pears. In every instance it was found that Keiffer pears ot thoroughly ripe had been used and no precooking was done. Keiffer ears are not recommended for canning, but a palatable product may be

Note.—Fruit may be successfully canned without the use of sugar; and when there is a carcity, it is sometimes necessary. Sugar is not used to preserve the fruit, but to bring out he flavor and improve the taste. Even a small amount of sugar will greatly improve flavor. A No. 1 sirup may be used where heavier sirups are quoted.

had if the fruit is allowed to ripen thoroughly and care is taken to precook until they are tender before canning. Both Keiffer and Pound pears are best made into preserves.

Figs.—*Figs for canning should be sound and firm. Sprinkle 1 cup of soda over 6 quarts of figs and add 1 gallon of boiling water. Allow the figs to stand in the soda bath for 5 minutes. Drain and rinse thoroughly. Bring 2 quarts of the No. 3 sirup to boiling and add the well-drained figs. Allow the fruit to boil in this sirup for 1 hour. Place the fruit carefully in the jars and then fill to overflowing with the sirup. Process quart jars for 30 minutes.

Note.—A hand-peeled fig is considered a finer product and may be canned in the same manner. The precooking period should be 40 minutes instead of 1 hour. (Jane S. McKimmon.)

Canned Cherries.—Cherries are usually canned without the seed and should always be put in glass jars. The acid is frequently so strong that it eats through tin; and even lacquered tin is not as satisfactory as glass. Be careful to notice that all cherries are sound at heart. The large wax cherries are often canned whole, and are very delicious. They should be blanched for 1 minute and then dropped into cold sirup when they will plump before they are processed.

Pack seeded or whole cherries in jar to within ¼ inch of top, fill jar with a sirup made of 1 gallon of water and 3 pounds 9 ounces of sugar. Place rubber on jar, seal lightly, and process quart jars 30 minutes. Process pint jars 20 minutes.

Read carefully the chapter on "Canning in Glass."

CANNING VEGETABLES IN GLASS AND TIN
4-H Recipes

Canned Tomatoes.—Pick tomatoes from vine when they are beginning to turn red and place on shelves in shade until thoroughly ripe.

Select only ripe tomatoes for canning. Any fruit less well colored may be used for soup mixture or ketchup.

One green or light colored tomato will ruin the grade of the pack.

Scald by placing in wire basket and plunging this into boiling water for one minute, then immediately into cold water. The skin will slip off easily. Do not peel any more than may be immediately canned, as tomatoes ferment quickly.

Be careful to remove with sharp knife the hard part of tomato at stem.

Put into your cans as many whole tomatoes as possible, cutting them only when they are too large to slip in. Fill to within ¼ inch of top, press gently and shake down fruit to fill crevices.

A level teaspoonful of sugar and a level teaspoonful of salt to a No. 2 can or a quart jar of tomatoes improve the flavor of the product. They should be added when can is half full.

Use no water with tomatoes. If the can is properly filled the juice will be sufficient. A No. 3 can of tomatoes when filled should weigh 38 ounces.

Exhaust No. 3 tin cans 3 minutes; seal; process 22 minutes.

When canning tomatoes in glass jars, fill quite full and process quart jars 30 minutes.

Read carefully the chapter on "Canning in Glass."

String Beans.—To can string beans select those that are young and tender and which have few strings. The Green Pod Stringless is a good variety. The trade likes a green bean about the size of a rat-tail, hence the term "rat-tail beans." If the beans are gathered when young and tender, all

*Creswell and Powell.

very vestige of string is removed, there is no doubt of a market. Snap the eans at both ends, string, and put in a thin cotton bag, and plunge into oiling water for from 3 to 5 minutes, and then into cold water. This emoves certain acids and makes the flavor of the beans better. Never for-et this when canning beans. Pack tightly in sterilized cans to within ¼ nch of the top, and fill with hot water. Add 1 level teaspoonful of salt. Instead of hot water and salt, a brine may be used: 1 gallon of water and 3 cup of salt). Seal. Exhaust No. 3 can for 3 minutes, tip, and return to he canner for 1 hour's processing.

For No. 10 cans use 1 level tablespoonful of salt, exhaust 3 minutes, tip, nd process 2 hours. Turn cans over once or twice while processing.

Sometimes a No. 10 can of tring beans caves in after rocessing. Be sure to see hat the beans are plunged nto cold water after blanch-ng. Pack them tightly in the an, add brine as you pack, nd reduce your exhaustion eriod to a minimum. These easures will reduce the like-ihood of a cave-in.

Fig. 14—An Exhibit Pack of String Beans.

Always can beans the same ay they are gathered, remem-ering the motto, "Straight rom the vine to the can." his insures sterilization in ne day's cooking. (Stale eans or mature beans neces-itate 1 hour's processing on ach of three successive ays.) See Fractional Sterili-ation.

When canning string beans n glass jars, process quart ars 1 hour and 15 minutes.

Read carefully the chapter n "Canning in Glass."

Soup Mixture.—Five quarts omatoes, 2 quarts corn, 2 uarts okra or lima beans, 2 ablespoons sugar (level), 2 ablespoons salt (level). Scald nd peel tomatoes, cutting out reen or hard spots. Chop and easure. Cut young and tender field or sugar corn from cob. Slice okra in ings ½ inch thick. Peel and quarter tomatoes. Place all in open agate ettle and boil until thick. Pour in No. 2 can while hot, seal, and process hour. Process a No. 3 can 1½ hour.

Always use an asbestos mat under the kettle when boiling soup mixture. t is very easily scorched.

When canning soup mixture in glass jars, process quart jars 1½ hour. rocess pint jars 1 hour.

If vegetables are put into cans without having previously been boiled own, these must be labeled "Mixed Vegetable for Soup," and should always e put in a No. 3 can.

Read carefully the chapter on "Canning in Glass."

Sweet Potatoes.—The Nancy Hall, Norton yam, or other varieties o yellow potatoes are best for canning. Select potatoes of medium size a nearly uniform in shape as possible; place in wire trays or sacks and bo with skins on until three-fourths done. Remove peeling while very hot, cu in slices three-quarters of an inch thick, pack in a No. 3 can to within ½ inch of top, using only 2 tablespoonfuls boiling water in a can. This i known as a dry pack, and is the proper commercial pack. Potatoes shoul be packed rapidly after par boiling, as they turn dark upon standing.

Exhaust a No. 3 can 3 minutes; seal; process 3 hours.

When canning sweet potatoes in glass, process quart jars 3 hours. Proces pint jars 2½ hours.

An exhibit of sweet potatoes may contain small whole potatoes or slice potatoes.

Read carefully the chapter on "Canning in Glass."

Canned Baby Beets.—When canning beets, use only young and tend ones, not over 1 inch in diameter, preferably ¾ of an inch.

Gather beets and allow at least 2 inches of stem and all of the root remain. Wash, but do not peel; plunge into boiling water, and cook un three-fourths done.

Remove peeling, stem and root, grade as to size, and pack symmetrical filling with hot water as you pack. (Never use cold water with beets.)

Seal. Process a No. 3 can 1½ hour. (Use lacquered can.)

If large beets are to be used, boil three-fourths done. Slice in ¼ in slides, and proceed as with small beets.

When canning beets in glass jars, process quart jars for 1 hour and minutes. Process pint jars for 1 hour and 20 minutes.

Read carefully the chapter on "Canning in Glass."

Sauerkraut.*—Sauerkraut is made by the natural fermentation of cabbae in casks. The cabbage heads are stripped of all outside or green leav leaving only the white, sound head. It is then cut into thin slices in specially constructed machine. The long, fine-cut cabbage is evenly spred and well packed in casks. To each layer salt is added at the rate of ab 2 pounds per 100 pounds of cabbage. The salt is used as flavoring and modify in some degree the fermentation. If too much salt is used, a pink color results; if too little, the fermented product may become more or l slimy. The temperature of the weather at the time of putting up the c bage also influences the fermentation. If the weather is very warm, fermentation is too rapid, the product has a very white but more or l slimy appearance, and the cabbage is tough rather than of a natural cr ness. If the temperature is very low, the fermentation will be arres The best temperature is probably between 60° and 70° F., and the proc requires about four weeks. Fermentation begins as soon as the cabbag placed in the cask, but there is only a slight rise of temperature as c pared with most fermentation processes. A heavy foam rises to the p which must be skimmed off every day, and when this ceases to form brine goes down and the process is complete. Use can be made of the k at once, though it seems to be better after standing. The kraut will l in the casks for a long time, provided there is no leakage, and the spoi is usually limited to a few inches on the top.

Kraut is easily canned, which is the only clean way of dispensing i groceries in small quantities. The canning should be done while it is in freshest possible state at the point of production, when it is from 4 weeks old. Kraut is easily kept. The cans should be filled full, weig and sufficient hot water added to fill the can; then exhausted for 3 min

*Bitting. Bulletin No. 196, U. S. Department of Agriculture.

ıpped, and processed at boiling temperature for 25 minutes. This is for
'o. 3 cans.

When canning sauerkraut in glass, process quart jars 40 minutes.

Read carefully the chapter on "Canning in Glass."

Canning Peppers.—The peppers should be picked in the early morning and
ıandled carefully to prevent bruising. This can be done by placing them in
ıallow trays, from which they can be easily sorted. The medium-sized,
ıiformly sound peppers should be canned whole. The irregular, broken
nes may be cut into strips and
anned or used in relishes, sauces,
r soup mixtures.

Standard Packing in Tins.—
elect sound, uniform peppers of
ıedium size. To remove seeds,
ıt around the stem of each with
slender paring knife and remove
ıe inside partitions. To peel,
lace the peppers in a hot oven
·om 6 to 10 minutes (until the
kin blisters and cracks), being
ıreful not to allow them to burn.
hen remove the skin with a slen-
ər paring knife. Flatten the pep-
ers and pack in horizontal layers.
·lace whole uniform peppers in
·ıe cans, putting four peppers into
ıe flat No. 1 can and eight into
ıe No. 2 can.

This number makes the stand-
·d pack, the net weight of which
ıould not be less than 1 pound in
No. 2 can and 8 ounces in a flat
o. 1 can. The peppers should be
) selected as to fill the cans. No

FIG. 15—Jar as Placed in Cooking Vessel Before Being Sealed Tight.

ıuid is used. The processing brings out of the peppers a thick liquor,
hich almost covers them in the can or jar. Cap and exhaust flat No. 1
ıns for 2 minutes and No. 2 cans for 3 minutes. Tip and process in hot
ater at boiling temperature, the flat No. 1 cans for 15 minutes, the No. 2
.ns for 25 minutes.

When canning peppers in glass, use a 12-ounce or a pint jar and process
) minutes.

Read carefully the chapter on "Canning in Glass."

Fractional Sterilization, or the So-called Three Days Process.—Such
ːgetables as corn, beans, peas, squash, spinach, pumpkin, etc., cannot be
erilized in one day's processing in a hot-water canner. The heat is not
·ıfficient to destroy spores, therefore the following method is required:

Vegetables are prepared and packed as heretofore directed, and the filled
ıns put into the canner and processed a given length of time to kill all
ːtive bacteria. This is usually accomplished in one cooking, but the spores
om which bacteria develop are not destroyed. When the can is set aside
cool these spores develop into active bacteria, and by placing the can in
ıe canner the second day in the same manner and for the same length of
me as on the first, these bacteria are destroyed. It happens that some
ıores are late in developing and bacteria appear after the second boiling,
.erefore it is necessary to place the can in the canner again on the third
ıy for the prescribed length of time. This completes the process and gives

us a well-sterilized can. After each day's processing the cans should b cooled quickly and set aside until the next day.

Process glass jars for the required number of minutes on first day, the push springs down tightly as you remove the jars from the canner. Remem ber that exhausting and processing are done at the same time with gla jars and for the same number of minutes. On the second day raise spring after the water has begun to boil, and spring tightly when removing fro the canner. Raise springs again on the third day when jars are in t canner, and seal tightly as jars a removed.

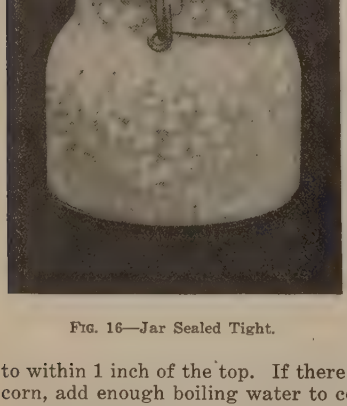

FIG. 16—Jar Sealed Tight.

For screw-top jars, do not disturb t seal at the second and third processi unless the rubber has blown out.

Corn.—When canning corn, sele that which is young and tender—just the milky stage—and see that it go into the can immediately after it com from the garden.

Sugar corn is best for canning, a pa ticularly good variety being "The Cou try Gentleman." When sugar corn ca not be had very young and tender fie corn is sometimes used. This shou have 2 teaspoonfuls of sugar added each pint canned.

Blanch the corn on the cob for 2 m utes and then cut from the cob with sharp knife. If any of the grain is l after cutting, scrape this off with t back of a knife.

Place the cut corn in a kettle a cover with hot water. Bring to a b and boil for 10 minutes.

Pack in No. 2 cans or hot pint j to within 1 inch of the top. If there is not sufficient water with the precook corn, add enough boiling water to cover the grains. Add 1 level teaspoon of sugar to each can. If field corn is used add 2 level teaspoonfuls of sug

Precooking of corn makes a more uniform product as it provides i great measure for the swelling of the grains before they are packed i the cans and insures a high temperature at the center of the can at very beginning of the processing.

Seal No. 2 cans, but do not tip. Place in the canner and exhaust fo minutes. Remove top and process for 1 hour and 15 minutes on each three successive days. After the first day's processing, the can is remov cooled quickly by placing it in a tub of cold water, and is set aside u next day.

When the water in the canner is boiling on the second day, place the c therein and again process for 1 hour and 15 minutes. Remove, cool as the first day, set aside for 24 hours, and on the third day proceed as on second.

This three-day method is the only sure way of preserving corn whe hot-water canner is used. A much less troublesome method can be follo if one could go to the expense of buying a steam-pressure canner. In retort the heat can be raised to the 250 degrees necessary to destroy spores in corn and the product can be sterilized in one 80-minute cool period.

When canning corn in glass use a pint jar—never anything larger—and ·erve the rules given in the chapter on "Canning in Glass."
.eave the jar lightly sealed until after processing and seal tightly as you ıove from canner. Before processing the second day, lift the spring and ɔw it to remain up until processing is completed. Seal tightly, remove m canner, and repeat the process on the third day.
Garden Peas.—Use No. 2 cans or pint jars when canning peas, as it is ·y difficult to sterilize them in larger jars.
Peas should be freshly gathered, and it is essential that they be graded. aking peas through wire netting of different sizes will grade them nicely. After grading, place small peas in a muslin sack and plunge into boiling ter for 3 minutes, then into cold. Large peas must be blanched 5 minutes. Pack peas in No. 2 can, fill with brine, and add 1 teaspoonful of sugar. haust 3 minutes and process 1 hour and 15 minutes. For older peas ɔcess 1½ hour.
Peas must be processed or boiled the same length of time on each of ·ee successive days.
Remove from the canner after first day's processing and set aside until xt day. Return to the canner on second day; boil tender peas 1 hour and minutes; larger ones 1½ hour. Remove from canner and set aside until ɜ third day, when the last processing or boiling is done. Boil tender peas ıour and 15 minutes and larger peas 1½ hour.
When canning peas in glass, process pint jars of tender peas 1½ hour. ·ocess pint jars of older peas 2 hours.
Read carefully the chapter on "Canning in Glass."
Corn Field Peas.—Gather peas when barely grown, shell, place in muslin ɔk, and plunge in boiling water and allow to precook for 10 minutes. ·move and pack while hot into cans. Add 1 teaspoonful of salt and fill to thin ¼ inch of the top with hot water.
Process a No. 2 can 2½ hours. Process a No. 3 can 3 hours. Older field as will require a three-day sterilization period of 1½ hour each day.
Lima Beans.—Use No. 2 can or pint jar for beans. Select young and nder lima or butterbeans, grade them as to size, blanch from 2 to 4 min-es, and pack can or jar to within ½ inch of the top. Fill can or jar with ine (1 gallon of water and ⅓ cup salt).
Exhaust can 3 minutes and process 1 hour and 10 minutes on first day. ·move from canner and set aside for 24 hours.
After the water is boiling in canner on the second day place the cans erein for a second processing or boiling of 1 hour and 10 minutes in ngth; remove; set aside for 24 hours, and process 1 hour and 10 minutes ı the third day.
When canning butterbeans in glass use a pint jar and process 1 hour and) minutes each of three days.
Read carefully the chapter on "Canning in Glass."
The drying of lima beans is advised in the place of canning.
Okra.—Gather young pods, wash in cold water, cut off stem, but do not ıt into seed pod. Can okra whole. Put in muslin sack and plunge into ɔiling water for 3 minutes and then into cold.
Pack in jars or cans and fill with brine (1 gallon water to ⅓ cup of salt.)
Exhaust No. 3 tin cans 3 minutes. Process 1 hour and 10 minutes. Ex-ıust No. 2 tin cans 3 minutes. Process 50 minutes. Remove from canner ſter processing and set aside for 24 hours.
After the water is boiling in the canner on the second day, place the cans ıerein for a second processing of the same length of time as on the first day. emove from canner and set aside for 24 hours, and process on the third day ı the same manner and for the same length of time as on the second day.

When canning okra in glass, process 1-quart jar 1 hour and 15 minu each day. Process 1-pint jar 1 hour each day.

Read carefully the chapter on "Canning in Glass."

Squash.—Can only young and tender squash. Cut in pieces and bla 3 to 5 minutes.

Pack in tin cans or jars to within ¼ inch of the top. Add 1 teaspoon of salt to each quart can and fill to within ¼ inch of the top with hot wa

Exhaust No. 3 cans 3 minutes; process 1½ hour.

Remove from canner and set aside for 24 hours. After water is boil in canner on the second day place the cans therein for a second process of the same length of time as on the first day. Remove from canner and aside for 24 hours, and process on the third day for the same length time and in the same manner as on the second day.

When canning squash in glass, process quart jars 1½ hour each day.

Read carefully the chapter on "Canning in Glass."

Pumpkin.—Pumpkin is canned just as you would can squash.

Spinach.—Prepare the spinach by cutting off all dead leaves and ro Cover each peck of spinach thus prepared with scalding soda solution teaspoonful of soda to 1 gallon water), and let stand for 2 minutes. W thoroughly through several cold waters, drain well. Blanch in rapidly b ing water for 4 minutes. Drain well, pack in sterilized No. 3 cans or j cover with boiling salt water (1 teaspoonful of salt to 1 quart of wat Exhaust 3 minutes. Process 1 hour and 15 minutes at boiling on each three successive days. When canning spinach in glass, process a quart 1 hour and 25 minutes on each of three successive days.

Read carefully the chapter on "Canning in Glass."

Use of No. 10 Cans.—Only experienced girls should be permitted to in No. 10 cans. It is difficult to sterilize perfectly so large a filled c tainer, and care must be exercised as to just what is put in a can and h it is accomplished.

String beans, tomatoes, soup mixtures, peaches, pears, apples, and bla berries have been successfully canned in these containers and marketed the club girls.

Do not try corn, peas, squash, pumpkin, or the other things most diffi to sterilize in a No. 10 can.

Caved-in Cans.—There has been some trouble with a No. 10 sinking ir the sides. This is found more frequently with string beans. It is caused the exhaustion of the air and the consequent shrinkage of water.

To prevent, dip beans in cold water after blanching, pack the can tightly and as full as possible, and fill with cold or tepid brine. Rec exhaustion to 3 minutes, and if the cave-in persists, do not exhaust at

Tomato Ketchup.—Select only ripe tomatoes for ketchup; wash, but not peel; cut out green cores and bad places; quarter, measure, and p on stove in open-top porcelain-lined or agate vessel. For every gallon tomatoes add 1 level cup of finely chopped onions. Boil until both tom and onion are soft. Strain juice and pulp through a coarse wire seive, m ing through all the pulp possible. Measure this strained pulp and juice proceed as in the following recipe:

2 gallons strained mixture tomatoes and onions,
2½ level teaspoonfuls ground cloves,
3 level teaspoonfuls ground ginger,
2 level teaspoonfuls ground red pepper,
3 level tablespoonfuls ground allspice,
1 level tablespoonful ground black pepper,
1½ level cup (½-pint cup) sugar,
¾ level cup (½-pint cup) salt,
1 quart vinegar.

Place strained tomatoes in agate vessel; add spices, sugar, and salt; boil til thick; then add hot vinegar slowly and let boil 30 minutes before be- ıning to bottle mixture.

Use clear flint 10-ounce grape-juice bottle. Wash well with soda and ıce in vessel of hot water until you are ready to use. It is best to put re netting in the bottom of the vessel, place the bottles filled with water ereon, and let come to a boil, thus sterilizing. Pour out water. Fill hot ttles with boiling ketchup. Cork tightly.

The measures for all recipes must be taken level. Scrape off spoons with knife, patting and scraping until measure is level. These measures have en taken accurately, and one should get good results if directions are llowed to the letter.

A good ketchup may be made in winter by using 5 cans of 4-H tomatoes, cup of chopped onions, and half the quantity of all other ingredients men- ıned in the above recipe.

Chili Sauce.—Tomatoes for chili sauce are mashed through a colander stead of through a sieve, thus allowing the seed to remain in the finished oduct. Use the same recipe as for tomato ketchup, adding 2 level cups opped green sweet bell peppers (leaving out seed), another level teaspoon ground red pepper, and 1 level tablespoonful of salt. Boil until quite ick—much thicker than ketchup. Put up in pint or half-pint glass jars, aling as in canned products.

A CHAPTER ON CANNING TROUBLES

Rubbers Giving Trouble.—Rubbers are giving more trouble than anything se to canners in glass. Many of them seem to be of very poor quality deed, disintegrating quickly when subjected to heat or strain. I have und, after testing, that good red or gray rubbers are best, and that, gen- ally speaking, the rubbers which come on the jars are not to be trusted. ake up your mind to get good rubbers, and buy them from a merchant ho sells enough to insure his having a new stock.

Shrinkage of Water in Jars.—Many enthusiastic canners have been much sturbed by the shrinkage of water in the jars of beans, peas, and other egetables after they have been processed or boiled. This is due to the fact at those vegetables contain air in their pods, or even in their tissues; and hen this air is driven off by the heat, the boiling water rushes in to take s place. In consequence, we have an apparent shrinkage in the amount of ater. To remedy this, the top may be removed from the jar just ten inutes before it is to be taken from the canner, and boiling water may be dded until the jar is quite full. Replace the top and allow the jar to main ten minutes longer in the canner.

Berries or Fruit Rising to the Top.—To prevent berries or fruits rising the top of the jar and leaving an excess of juice at the bottom, always anch these products before packing into a jar. If I should be canning lackberries, the fruit would be placed in a bag and plunged into boiling ater (blanched) for one minute, and then plunged into cold. I should xpect it to emerge somewhat softened, though still firm, and in just the ondition to be packed very closely in a jar, so closely in fact that it would e possible to add very little sirup. When a jar thus packed is processed, r boiled, for the proper length of time, the berries will extend from the ottom to the top of the container, and not be floating as would unblanched uit. Peaches, apples, and other fruits are treated in the same way.

By the way, if you desire well-flavored fruit, always add sugar in the rm of sirup. It does not take much with blanched fruits, and the grade of ne product is infinitely better.

I have said much about not canning green fruit, but it will not hurt emphasize the fact that it will give you a poorly flavored and a poo colored article. You cannot make a good product out of a poor one canning.

Peeled Fruit Discoloring.—Plunge peeled apples, peaches, or pears imm diately into cold water to prevent them from turning dark.

On the other hand, to keep beets from fading or bleeding, wash well, b do not peel, and start cooking in boiling water. Peel before packing jars, and cut as little as possible.

Flat Sours.—Did you ever have vegetables in cans to become sour, ev though they gave no sign of the state of affairs by swelling at the en These are what are called flat sours, and are caused by imperfect steriliz tion. Some foods are attacked by bacteria which thrive without the pr ence of air, and decompose canned foods without forming gas. This con tion is found frequently when stale vegetables are canned.

Corn.—Do not fill jars or cans too full of corn. Leave fully one inch space at the top, and be sure to precook for ten minutes before packi into a can. When packing the corn, pour water until the can is almost fu When the corn swells, the water will be absorbed.

We are receiving a good many complaints from persons trying to c corn, peas, butterbeans, and such vegetables by processing for three hou on one day in a hot-water canner. This is not a safe method. Vegetab must be at exactly the right stage and absolutely fresh to give good resu under such treatment, and as nine out of ten packs are not taken at t right stage, we advise by all means that canners use the three-day proce or, better still, a steam-pressure canner.

Undoubtedly, bacteria are killed by the one-day cooking, but the temp ature of boiling water is not sufficient to kill the spores. These develop the second day into bacteria, and may be killed by a second boiling. So last over until the third day, and it is at the third processing only that can be sure we have destroyed them.

Swells.—Swells are produced by insufficient sterilization. The action bacteria causes gas to form in the can and a bulging at either end follo If left long enough these cans will explode. All bulging cans should regarded with suspicion, though at times a slight bulge will occur when can has been filled too full. It is best to open bulging cans and determi definitely what the trouble is. No can even slightly bulging should be p upon the market.

Frozen Products.—Products which have been subjected to a freeze sho be carefully watched. If the freeze does not burst the can or jar, the o harm done will be a slight softening of the tissues. In glass jars there sometimes a small crack left which may admit bacteria.

Trouble in Sealing Tin Cans.—Usually the can is too full. See that portion of the fruit touches the top or small pin holes will be blown in t seal by the escaping steam which is generated by the hot solder when comes in contact with the fruit. Another cause is a poorly heated cappi steel or one that is not kept brightly tinned. Sealing cannot be prope done unless the steel is clean, bright and hot. Be sure to get good sold Some has been put upon the market that is so poor it will not flow wh heated.

Caved-in Cans.—There has been some trouble with a No. 10 sinking in the sides. This is found more frequently with string beans. It is caused the exhaustion of the air and the consequent shrinkage of water.

To prevent, dip beans in cold water after blanching, pack the can tightly and as full as possible, and fill with cold or tepid brine. Redu exhaustion to 3 minutes, and if the cave-in persists, do not exhaust at

SHIPPING

Packing Tin for Shipping

When tin cans are packed to be shipped, a box containing two dozen cans the regulation shipping case. These boxes must be uniform in size and neat appearance. Under no condition ship to a merchant a box containfive, six, or even three dozen cans. This is most unbusinesslike and the ler is justifiably provoked when he tries to pack such a box in a space igned for boxes of regulation size. Barrels are not good shipping conners for tin, but are excellent for shipments of glass.

Pack cans in box and nail on top. Be careful not to drive nails into cans. ny cans have been spoiled in this manner. Paste on both ends of the box abel such as you have on the cans, that the contents of the box may be ily discerned. Write name and address of the purchaser plainly on a tag l tack with very short tacks on top of box. Write the name of the club mber or shipper on another tag and tack this in the upper left-hand cor- of top. Be careful that tacks do not pierce the cans.

Packing Glass for Shipping

The corrugated paper boxes with partitions have not been found suffintly safe in shipping products packed in glass in less than carload lots. is, therefore, advised that each separate glass jar be wrapped in excelsior, d, and packed in boxes or barrels, the sides, top, and bottom of which are ed with same packing. Jars wrapped in this manner are packed, also, in strong corrugated paper boxes. Barrels are good shipping containers ere only a few dozen jars are shipped at once. Use uniform boxes in king a shipment. There are many box factories from which supplies may had.

Bill of Lading

Send to the merchant to whom shipment is made the bill of lading given the freight agent, and notify the merchant of the shipment. Send to him, so, a list of what has been shipped. This is called an invoice. Keep a py of the invoice for your own information.

Invoice

Raleigh, N. C., October 1, 1917.

hn Doe & Co.,
Greensboro, N. C.

To Mary Smith, Dr.

cases	Tomatoes @ $3.60	$ 36.00
cases	String Beans @ $4.00	20.00
cases	Soup Mixture @ $4.00	48.00
cases	Kraut @ $3.00	12.00
cases	Peaches @ $4.80	48.00
Total		$164.00

Express Receipt

Always get an express receipt when shipping by express. Keep this in se of trouble.

Some Shipping Terms

F. O. B. means free on board. For example: Should a shipment of tom toes be made to New York at $2 per case, f. o. b. Raleigh, it would mean th the club member would deliver the cased tomatoes to the freight depot Raleigh, and the purchaser would pay both the price per case and the freigh Should the club member deliver products f. o. b. New York, it would mea she would deliver them to the freight depot, Raleigh, and also pay the freig to New York.

C. O. D. means collect on delivery, and the purchaser must pay the pri of the products to the transportation company before they can be taken fro the express office.

Bill of Lading with Sight Draft Attached is also a call for the money b fore the purchaser can take products from the freight office. Any bank will explain this to the shipper.

Drop Shipment. When a wholesale merchant purchases a number of cl products he frequently desires to have them shipped direct to some firm firms purchasing from him, that he may eliminate the expense of two shi ments. This is called a drop shipment.

Lot Shipment. When two or more cases or barrels are shipped to t same place they can be listed as a lot shipment and may be sent at a cheap rate than if each was shipped separately.

$ 164. Raleigh, N. C., Oct 1 1917

At Sight Pay to the

Order of So. Ry Co.

One hundred + sixty four Dollars.

WITH EXCHANGE.

Value received and charge to account of

To John Doe + Co

No. Greensboro N.C. Mary Smith

Fig. 17—Usual Form of Sight Draft.

6-11-17 4,000 M sets C 64033

Form M.
SOU. RWY. 4077
C., N. O. & T. P. 4052
A. G. S. 4153
N. O. & N. E. 4170

SOUTHERN RAILWAY COMPANY

THIS SHIPPING ORDER must be legibly filled in, in Ink, in Indelible Pencil or in Carbon, and retained by the Agent.

Shipper's No._____

Agent's No._____

RECEIVE, subject to the classifications and tariffs in effect on the date of issue of this Shipping Order,

at_____ 191_

From_____ the property described below, in apparent good order, except as not (contents and condition of contents of packages unknown), marked, consigned and destined as indicated below, which said Company agre to carry to its usual place of delivery at said destination, if on its line, otherwise to deliver to another carrier on the route to said des nation. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to the conditions, whether printed or written, herein contained (including conditions on back hereof), and which are agreed to by the shipp and accepted for himself and his assigns.

*The Rate of Freight from*_____

*to*_____ *is in Cents per 100 Lbs.*

IF __Times 1st Class	IF 1st Class	IF 2d Class	IF Rule 25	IF 3d Class	IF Rule 26	Rule 28	IF 4th Class	IF 5th Class	IF 6th Class	IF Class A	IF Class B	IF Class C	IF Class D	IF Specia per

(Mail Address—not for purposes of Delivery).

Consigned to John Doe & Co

Destination Greenstone State of N C County of Guilford

Route So Ry Car Initial_____ Car No._____

No. PACKAGES	DESCRIPTION OF ARTICLES AND SPECIAL MARKS	WEIGHT (Subject to Correction)	CLASS OR RATE	CHECK COLUMN
10	Cases tomatoes	600		
5	" beans	300		
12	" soup mix	720		
4	" krout	120		
10	" peaches	600		
	Lot shipment			

If charges are to prepaid, write or stam here, "To be Prepaid

Received $_____ to apply in prepayme of the charges on t property described he on_____

Agent or Cashie

Per_____ (The signature here ackn edges only the amount prepai

Charges Advanced

$_____

_____ Shipper

Per_____

☞ Agent must detach and retain this Shipping Or and must sign the Original Bill of Lading and Memorandu

NOTE.—Unless this Shipping Order is signed by the shipper, this shipment will be carried at the carrier's liability, limited only as provided by law; but subject to the terms and conditions of the bill of lading in so far as they are not inconsistent with such common carrier's liability.

FIG. 18—Usual Form of Bill of Lading.